



NTSB National Transportation Safety Board

Collaboration
to
Improve Safety
while
Improving Productivity

Presentation to: US High
Speed Rail Association

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System Think

An awareness of how a change in one subsystem of a complex system may affect other subsystems within that system



“System Think” via Collaboration

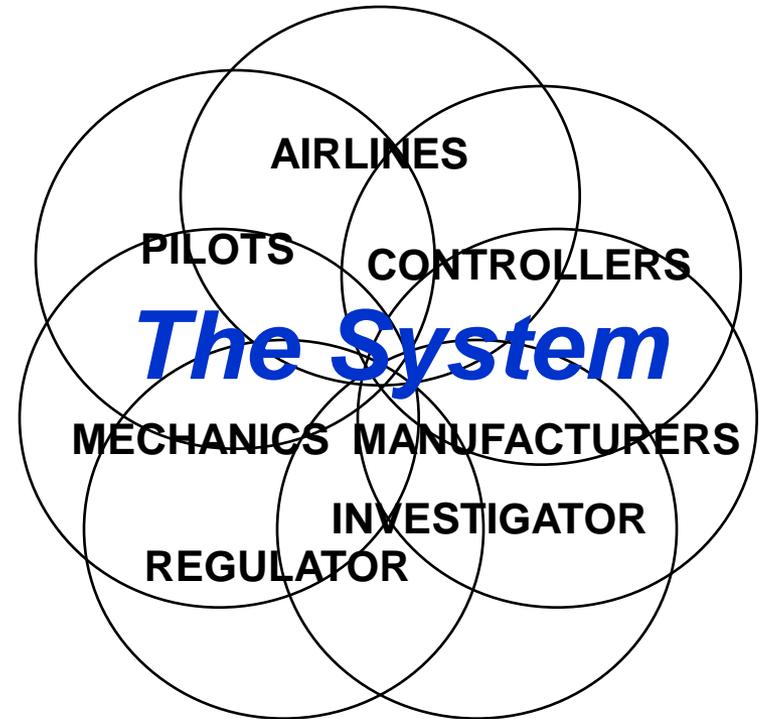
Bringing all parts of a complex system together to

- **Identify potential issues**
- ***PRIORITIZE* the issues**
- **Develop solutions for the prioritized issues**
- **Evaluate whether the solutions are**
 - **Accomplishing the desired result, and**
 - **Not creating unintended consequences**



Aviation “System Think” Success

- Engage All Participants In Identifying Problems and Developing and Evaluating Remedies
- Airlines
- Manufacturers
 - *With the systemwide effort*
 - *With their own end users*
- Air Traffic Organizations
- Labor
 - *Pilots*
 - *Mechanics*
 - *Air traffic controllers*
- Regulator(s) **[Query: Investigator(s)?]**



Collaboration: A Major Paradigm Shift

- **Old: “Leader” identifies a problem and proposes solutions**
 - **Prospective implementers are skeptical of leader’s understanding of the problem**
 - **Prospective implementers resist leader’s solutions and/or implement them begrudgingly**
- **New: Collaborative “System Think”**
 - **Implementers involved in identifying problem**
 - **Implementers have “ownership interest” re solution because everyone had input, everyone’s interests mutually considered**
 - **Prompt and willing implementation (and tweaking)**
 - **Solution probably more effective and efficient**
 - **Unintended consequences much less likely**

Challenges of Collaboration

- Human nature: “I’m doing great . . . *the problem is everyone else*”
- Differing and sometimes competing interests
 - Labor-management issues between participants
 - Participants are potential adversaries
- “Leader” (regulator?) probably not welcome
- Not a democracy
 - Leader must lead (regulator must regulate)
- Requires all to be willing, in their enlightened self-interest, to leave their “comfort zone” and think of the System

Aviation Success Story

65% Decrease in Fatal Accident Rate,

1997 - 2007

largely because of

System Think

fueled by

***Proactive Safety Information
Programs***

P.S. Aviation was already considered **VERY SAFE** in 1997!!



Manufacturer “System Think” Success

Aircraft manufacturers are increasingly seeking input, throughout the design process, from

- ***Pilots*** (**User Friendly**)
- ***Mechanics*** (**Maintenance Friendly**)
- ***Air Traffic Services*** (**System Friendly**)

Thank You!!!



Questions?